

Engineering Heritage Australia (Victoria)
Reply to 62 Relowe Cres, Mont Albert North, 3129

21 August 2003

The Administrator
Engineering Heritage Australia
The Institution of Engineers, Australia
11 National Circuit
BARTON, ACT, 2600

Dear Administrator

Recognition of the Dome of the State Library Victoria with a Historic Engineering Plaque

Enclosed for consideration by Engineering Heritage Australia's Commemorative Plaquing Sub-Committee are three copies of the documentation covering a nomination for recognition of the Dome of the State Library of Victoria with a Historic Engineering Marker.

A fourth copy with colour illustrations for the Institution's file will be forwarded later.

Yours sincerely

Dr B. C. S. Harper
Chair, Engineering Heritage Australia (Victoria)

Encl. 4

From: Anne & Bruce Sandie <sandie@iprimus.com.au>
To: <bandjharper@netspace.net.au>
Date: Thursday, 13 February 2003 12:37 PM
Subject: Fw: State Library Domed Reading Room - plaque

Dear Brian,

I finally managed to speak to Andrew Hiskins in person, by phone and ask him for an urgent reply to our request for permission to plaque the dome. I received the following email today. (He had not previously replied to my two letters, three emails and five phone messages on his answering machine). My first letter included details of the IEAust plaquing program.

The dome is to be officially reopened in July 2003, with further work on book stacks to be completed some time in 2004. Andrew claimed that he had been waiting to get the completion date in 2004 before responding, because he thought that a suitable plaque location would be at the top of the dome, where there is to be an interpretation centre, and the plaquing could not take place until 2004.

I suggested a location in or just outside the Reading Room would be better and it appears from his email that he now agrees. He suggests that the three of us decide on a suitable location after July, when the main work is complete.

Andrew would not agree to my suggestion that we participate in the official opening in July and that the plaquing be part of the opening ceremony. He proposed a separate event, at a mutually agreed time after July, would be more appropriate and I note he requires us to cover all costs.

Regards,
Bruce S.

----- Original Message -----

From: <AHiskens@slv.vic.gov.au>
To: <Sandie@primus.com.au>
Cc: <SCarmody@slv.vic.gov.au>
Sent: Thursday, February 13, 2003 12:03 PM
Subject: State Library Domed Reading Room - plaque

> Dear Bruce,

>

> I am writing to confirm the Library's agreement in principle to the
> proposal that the Institute of Engineers erect a plaque in the Domed
> Reading Room to honour the national significance of the building and its
> construction.

>

> Briefly our understanding is as follows:

- > - the plaque would be of cast bronze and about 300mm in diameter
- > - it will be erected at the cost of the Institute (subject to your getting approval at a national level)
- > - we will determine the location at a later stage, although our preference would be to put it at reading room level, somewhere near the entrance
- > - there will be some form of unveiling ceremony at a time to be negotiated

400mm x 300mm

> (the Reading Room will re-open in July this year, so it will not be before
> then).

>

> With best wishes,

>

> Yours sincerely,

>

>

> Andrew

>

> Andrew Hiskens

> Manager, Public Programs

> State Library of Victoria

> Phone (03) 8664 7275

> Fax (03) 9639 4189

> E-mail ahiskens@slv.vic.gov.au

> www.statelibrary.vic.gov.au

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delete this email.***

>

Nomination Form

Australian Historic Engineering Plaquing

The Administrator
Engineering Heritage Australia
The Institution of Engineers, Australia
Engineering House
11 National Circuit
BARTON ACT 2600

Name of work: Reinforced Concrete Dome of the State Library Victoria

The above-mentioned work is nominated to be awarded a:

- ~~National Engineering Landmark*~~
- Historic Engineering Marker*:

*(Delete as appropriate).

Location, including address and map grid reference if a fixed work:

328 Swanston Street, Melbourne Vic 3000 [Zone 55, 58 13A, 32A7]

The library is on the north-east of the intersection of Swanston and La Trobe Sts.
Melbourne CBD.

Owner: State Government of Victoria

The owner has been advised of this nomination, and a letter of agreement is attached. (email release)

Access to site: The library and the Dome Reading Room is open
to the public daily.

Nominating Body: Engineering Heritage Australia (Victoria)

Chair of Nominating Body

Date:

BBSHape

Chair of Division Engineering Heritage Group

Date: 21 August 2003

INSTITUTION OF ENGINEERS, AUSTRALIA
ENGINEERING HERITAGE AUSTRALIA (VICTORIA)

PLAQUING NOMINATION

Item Name:	REINFORCED CONCRETE DOME OF THE STATE LIBRARY VICTORIA
Address:	328 Swanston Street, on the south-east corner of the intersection of Swanston and Latrobe Streets, Melbourne,
State:	Victoria.
Other/Former Names:	None
Local Govt. Area:	City of Melbourne
Owner:	State Government of Victoria
Current Use:	The dome forms the roof over the main reading room of the Library.
Former Uses:	None
Assessed Significance:	National
Statement of Significance:	The dome of the Reading Room of the State Library of Victoria was the first large ribbed, reinforced concrete dome constructed in Australia. At the time of its completion in 1911, it was the largest such dome in the world, was of world renown, and was a highly visible example of contemporary structural engineering. It used state of the art technology in a new developing field, the first English textbook on reinforced concrete having only been published in 1902, and the first British Code of Practice for Reinforced Concrete issued in 1910. It is significant in its combination of technical, architectural and functional considerations to create an impressively proportioned space.
Historical Notes:	The new reading room and stack room was added to the State Library to provide a large open space with natural lighting, modeled on the famous reading room at the British Museum, for use by persons accessing the Library's collection. The State Library is a significant Victorian public building.
Designer:	Architect – N. G. Peebles of Bates Smart Original Structural design, 1906 - John Monash, using the Monier Reinforcing System. Modified Structural Design 1909-10 - Trussed Concrete Steel Company, London, using patented Kahn trussed Bar reinforcement.

Maker/Builder:	Swanson Brothers
Year Started:	1910
Year Completed:	1911
Physical Description:	The dome is of octagonal shape in plan, supported by 16 reinforced concrete ribs, with a clear internal span of 115 feet (35.1 metres) and external dimensions, including flying buttresses, of 134 feet (40.8 metres). A 32 foot diameter (9.8 metres) lantern occupies the centre of the dome. The middle third of the dome was originally glazed and the lower third was enclosed with concrete panels.
Physical Condition:	Good. Major maintenance and restoration undertaken in 2001-2.
Modification Dates:	1950's - the entire dome was copper sheathed because of ongoing leakage problems. 2001-2 - new skylights placed in the dome to restore the original character and bring light back into the Reading Room, without alterations to the original structural support system.

SIGNIFICANCE

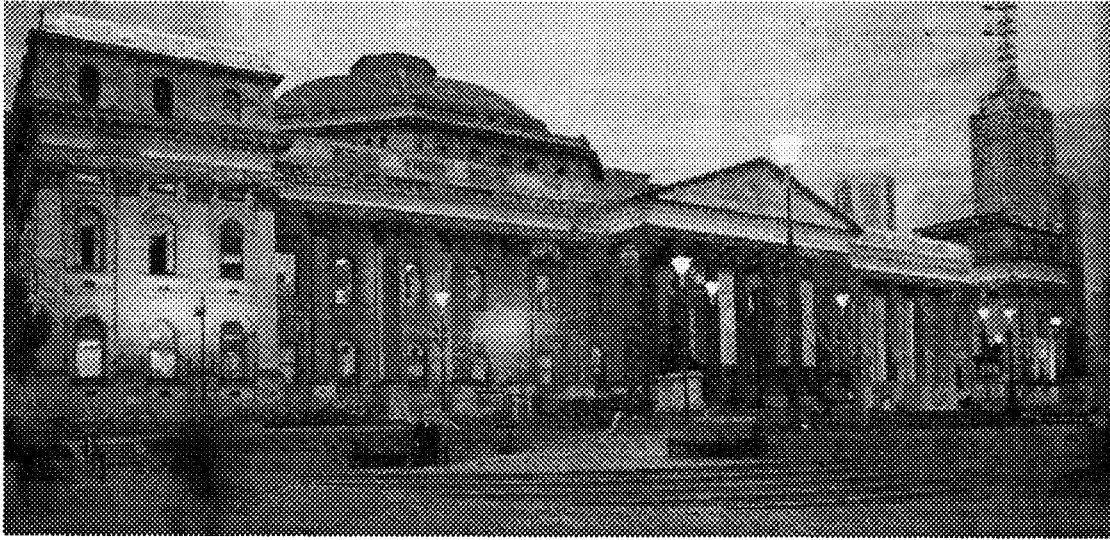
Historical: The State Library was seen as an important institution for the developing colony of Victoria, and it was strongly supported by the Colony's influential leaders of the 19th century as the capital city developed into what became known as "marvelous Melbourne." The choice of a large dome to roof the reading room to be added to the Library, and the decision to modeled that room on that of the British Library in London and use new technology, illustrates the confidence and exuberance in the Victorian community as the colonies federated.

Historical Association: The domed reading room and stack formed a significant expansion of the Library complex of buildings on which construction commenced in 1854. The early buildings were the first purpose built free public library buildings in Australia. The complex developed as the principal educational and cultural centre for the people of Victoria, with the collection of buildings housing the National gallery of Victoria, the Industrial and Technological Museum and its successor the Museum of Victoria as well as the Library

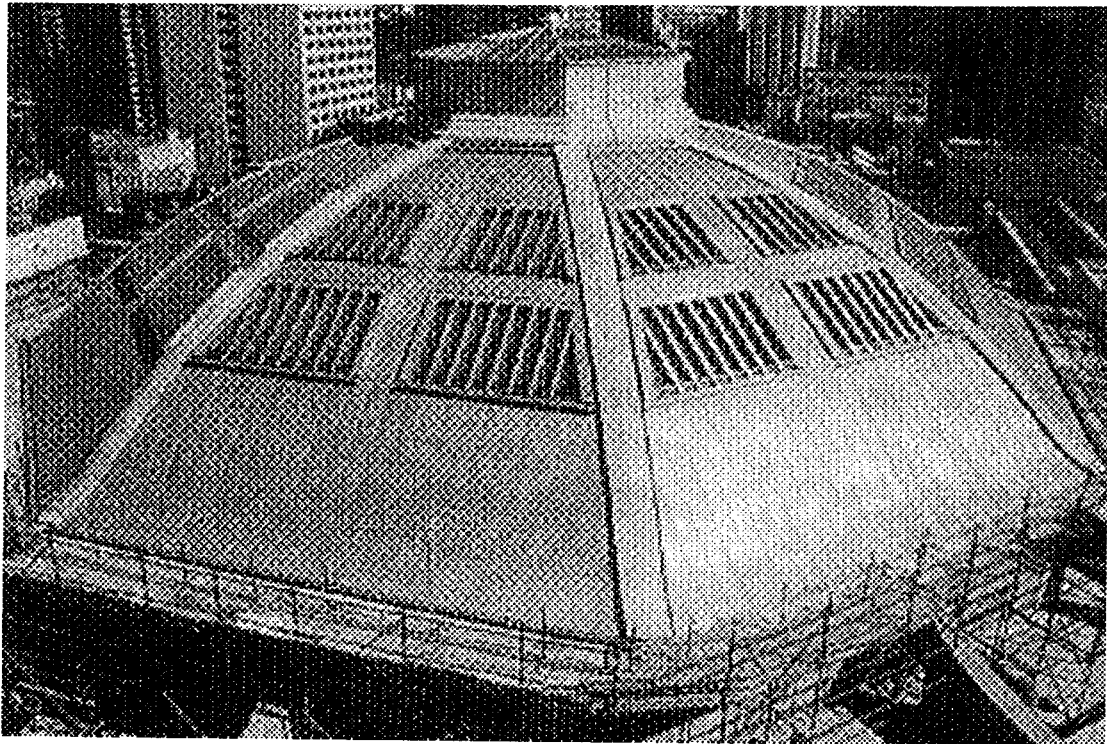
Creative or Technical Achievement: This dome when constructed was the largest ribbed reinforced concrete dome ever built . It helped pioneer the use of reinforced concrete in this country.

Research Potential: None

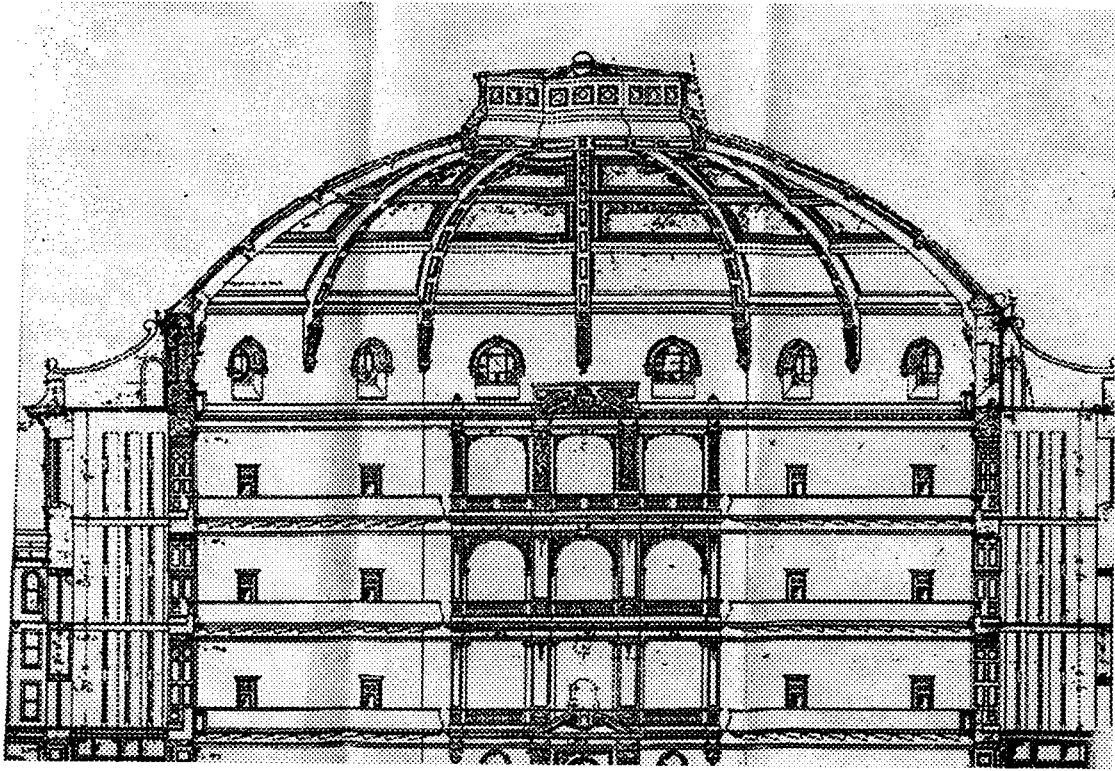
Social:	The State Library is a significant public building. It is the dominant building in the area and the dome is a major landmark.	
Rarity:	The dome was unique at the time of its construction and is still unique in Melbourne. The only comparable works overseas are the domes at the National Gallery, London, and Central Hall, Westminster.	
Representativeness:	It is a major world example of early ribbed reinforced concrete domes.	
Integrity/Intactness:	The dome is in good condition. Major maintenance was undertaken in 2001-2 and its on going maintenance is under the care of the State Library Board.	
References:	Author: Saunders, D. L.	Title: 'The Reinforced Concrete Dome of the Melbourne Public Library, 1911" <i>Architectural Science Review</i> , March 1959, pp 39-46.
	Lewis, M	"Monier and Anti-Monier: Early Reinforced Concrete in Australia" <i>IEAust. 2nd National Conference on Engineering Heritage</i> , May 1985.
	Jones, B. E. & Lakeman, A, Eds.	"Cassell's Reinforced Concrete." <i>The Waverly Book Company, London</i> , 1912
Listing:	Heritage Register Victoria National Trust Australia (Victoria)	
Images	See following pages	



View of state Library dome from Swanston Street



Aerial View of Dome following re-glazing



Part of Architects Drawing showing Dome

Suggested text for plaque.

STATE LIBRARY DOME

This dome, of ribbed reinforced concrete, was conceived by the architect N. G. Peebles, with structural design by John Monash using the patented Monier Reinforcing System. It was built by Swanson Bros. using a different patented reinforcement system designed by the Trussed Concrete Steel Company of London. At the time of its completion, 1911, it was the largest such dome in the world, and of world renown. It reflected the high level of structural engineering skills in the designers and their confidence in the then new reinforced concrete technology.

STATE LIBRARY OF VICTORIA

304-328 SWANSTON STREET AND 179-181 LATROBE STREET MELBOURNE

VHR Number	H1497
File Number	605883 (1-10)
Other Names	STATE LIBRARY AND NATIONAL MUSEUM COMPLEX
Year Construction Started	1854
Year Construction Completed	1913
Municipality	Melbourne City
Municipality 2	Melbourne City
Other Listings 2	National Trust of Australia (Victoria)
Other Listings 3	Register of the National Estate
Architect/Designer	Reed, Joseph
Architectural Style	Victorian Period (1851-1901) Academic Classical
General References	<p>Museum Development Study (Volume 1, 2 & summary report), 1986, Ministry for the Arts</p> <p>Museum of Victoria: A concept for development - the next decade, Edwards, R, 1985, Museum of Victoria</p> <p>Refurbishment of Foyer Walls at State Library/Museum - Project Report, Housing and Construction, Victoria, 1991, Department of Planning and Housing</p> <p>Report on the Internal Decorative Features to McCoy Hall, Natural History Museum, Melbourne, Allom Lovell & Associates, 1983, Public Works Department</p> <p>State Library and Museum of Victoria Buildings, Allom Lovell Sanderson Pty Ltd, 1985, Public Works Dept Heritage Group</p> <p>State Library and Museum of Victoria Buildings: conservation analysis, 1985, Heritage Group, Public Works Dept</p> <p>State Library and Museum of Victoria Complex: Section E - McCoy Hall (Copy 3, Volume 3)</p> <p>State Library of Victoria Forecourt - Landscape Masterplan Report, Department of Planning and Housing, 1991, Museum of Victoria - Building Property Committee</p> <p>The Existing Conditions of the State Library and Museum of Victoria, Volume 1 & 2, 1988, Ministry of Housing and Construction</p> <p>State Library of Victoria, Window Refurbishment La Trobe Library and Links Levels 4, 5 & 6, Specification, Pels Innes Nelson Kosloff, Pels Innes Nelson Kosloff</p> <p>Submission the Heritage Victoria in relation to the extent of registration and proposed permit exemptions for the State Library of Victoria Complex, Swanston Street, Melbourne, Allom Lovell & Associates, 1999, Allom Lovell & Associates</p> <p>Conservation Report, State Library of Victoria, Stonework: West facade & returns slate & lead roof: west portico, Building Services Agency, Department of Infrastructure, 1997, Building Services Agency, Department of Infrastructure</p> <p>Specification for materials to be supplied and works to be carried out in the stonework conservation to the west facade of the state library of vicotira building, Allom Lovell & Associates, 2000, Allom Lovell & Associates</p>
Spatial Information	-37.81127, 144.964
Heritage Act Categories	Heritage place

Click on the arrow below to view the Item Categories.

Item Categories

Click on the arrow below to view the Statement of Significance. Note: Some records may not yet have a Statement of Significance.

Statement of Significance

(Draft Statement of Significance, March 2000) Governor, Charles Joseph LaTrobe appointed the trustees for Melbourne's new public library in July 1853. On 3 July 1854, His Excellency, Sir Charles Hotham laid the foundation stone for the first building comprising an entrance hall and lavish upstairs reading room. Initiated by Melbourne's cognoscenti at the height of the goldrushes, with Chairman of Trustees Redmond Barry (1813-80) its prime founder, the new institution reflected the wealth of the colony and the high ideals of the library trustees who aspired to link the natural affinities between libraries, museums and art galleries and thereby create one great centre of learning. An early work by architect Joseph Reed (1823?-90), the design was the winning entry in a competition which put great emphasis in its brief upon the need for the drawings to facilitate future expansion. Over the following century many new buildings were added as the 'centre of learning' flourished. The Museum of Art opened in 1861 and shared the site until 1968. The Intercolonial Exhibition held here from 1866-67 led to the opening of the Industrial and Technology Museum in 1870, a forerunner to the National Museum of Victoria which shared the site from 1899. When the Museum of Victoria completes its transfer to Carlton at the turn of the century, the Library will once again be the sole occupant of the seven acre site. The State Library of Victoria buildings are of historical, architectural, aesthetic, social and technological importance to the State of Victoria. The State Library buildings are collectively of historical importance for having been the principal educational and cultural centre for the people of Victoria over the past 140 years. The early buildings are unique and significant as the home of the first purpose-built, free public library in Australia and one of the first in the world. Successive buildings are important as the first homes of the National Gallery of Victoria, the Industrial and Technological Museum and its successor the Museum of Victoria. The buildings reflect the cultural and economic evolution of the Library, Museums and National Gallery and their architecture is significant for documenting their changing philosophies and status. The library has important and indelible historical associations with the social cultural and philanthropic activities of its visionary founder, Sir Redmond Barry, whose statue commands the forecourt. In his quest to provide free, rational recreation for the public at large he established before his death in 1880 one of the great library collections of the world, administered upon the most liberal principles. Other identities strongly associated with these buildings include Bernard Hall, influential Director of the National Gallery of Victoria from 1891-1934, and Sir Baldwin Spencer, first Director of the Museum of Victoria. Joseph Reed's nineteenth century English Palladian style edifice, and the buildings extending behind it, are collectively architecturally important as variations unified on a classical theme, faithful to the desires and economies of their period while loosely conforming to Reed's original masterplan. The Swanston Street building is important as the first major building by Reed and is unique as a sophisticated, early example of public architecture in Australia. Queen's Hall is particularly significant for its elaborate interior and as an early example in library design. The Dome Building designed by N.G. Peebles, of Bates Smart & Peebles, is significant as one of the most impressively proportioned and largest secular spaces in Australia, and is symbolic of the size and importance of the library's collections. Other buildings historically and architecturally significant, are the reading room stairhall, McArthur Gallery, and Barry, Monash, Palmer, McCoy, Baldwin Spencer and Thorpe Halls. The Dome Building, completed in 1913, is technologically significant for its early and innovative use of reinforced concrete construction, and for its ability to combine technical, architectural and functional considerations into a coherent successful whole. The engineering is important for having achieved the largest reinforced concrete dome in the world for its time through the application of the influential Trucson system. The forecourt is of aesthetic and historical significance as the setting to Melbourne's first public, cultural institution. Despite its absorption of major alterations since the 1850s (notably by Percy Everett in 1939), the original nineteenth century concept of William Guilfoyle remains in the formal approach to the building. The three nineteenth century statues and the gasoliers provide symmetry to the landscaping and grand entrance portico and are fine examples of metalwork for their period.

The statues have further significance for documenting the former association of the Library with the National Gallery. The State Library buildings, former National Gallery and Museum of Victoria buildings have social significance as places of learning and leisure for all Victorians regardless of position or status. The changes in occupancy of the buildings reflects the expanding cultural needs of the community as well as the growth of the State's collections. The dramatic, domed reading room has social importance as a place revered by many readers as the State's most hallowed expression of book culture.

Click on the arrow below to view the Images. Note: Some records may not yet have images.

 Images

TWO HUNDRED YEARS OF CONCRETE IN AUSTRALIA

Miles Lewis

Concrete Institute of Australia

Bank Place Chambers still had brick outer walls, and much more remarkable was the pair of buildings in Oliver Lane of about 1905-7, which were to house Monash's own offices and those of his supporter Mitchell.⁴⁶ Here there is no brick cladding, but a complete concrete structure resembling those which Frederick Ransome was building in the United States.⁴⁷ It was possible to build in this way by obtaining a dispensation from the requirements for wall thicknesses under Melbourne building regulations. In 1907 these regulations were modified to allow both steel and concrete framed buildings to have thin structural walls, referred to as 'curtain walls', though not necessarily conforming to any definition of the term.⁴⁸ The Oliver buildings seem to have been the first conventional buildings in Australia constructed wholly of reinforced concrete.

Monash was in turn to introduce reinforced concrete to South Australia, where he established the South Australian Reinforced Concrete Co. Ltd. in 1906. Early works included the Hindmarsh Bridge at Victor Harbour of 1907, the reinforced concrete railway bridge in the country,⁵⁰ and in 1907-8 a wharf at Port Adelaide and some commercial buildings.⁵¹ Of

these Kither's Building in King William Street, Adelaide, was the first major structure in the city:⁵² this survives today in a defaced condition. The introduction of reinforced concrete in other states is less well documented, and probably rather less exclusively controlled by the Monier agents: by 1910, for example the architect Alexander North was using reinforced concrete in a number of buildings around Launceston, but not necessarily in accordance with the Monier or any other accepted system, for his vaults at St John's Church are reinforced with railway iron.⁵³

The editor of *Building*, G A Taylor, was a great protagonist of reinforced concrete, and in 1902 had invented his own (wholly impractical) reinforcing system.⁵⁴ He subsequently campaigned against the attempted Monier monopoly, and Victoria especially saw a flood of overseas patents introduced by local hopefuls. The most significant confrontation involved the main reading room of the Melbourne Public (now State) Library. The reinforced concrete frame and dome — at 34.8 metres span the largest in the world at the time — were designed by Monash to be in Monier concrete. The outcry which resulted from the Master Builders Association, abetted by Taylor, forced the trustees to open

the contract to competition, and in 1909 it was awarded to Swanson Brothers with the reinforced concrete by the Trussed Concrete Steel Company of England (Truscon). Monash's overall dimensions were unchanged but the reinforcing within them was totally different.

The English Truscon company was an offshoot of the American one and its system used the bar patented by Albert W Kahn in 1902: this was rolled with flanges on either side, and these were slit longitudinally to allow strips to be folded out. When used in a beam these strips were successively angled up on a slope to serve as shear reinforcement, but in a column they might be bent at right angles to the bar and wrapped around the reinforcement as ligatures. Although the English company now became directly involved in the library contract, their Kahn bars had made an appearance in Australia at least by 1907,⁵⁵ and were sold in Sydney through Truscon's 'advisory agents for Australia', Elliott McLean & Co., and subsequently through separate agents in the various states. While the capture of the Public Library contract in 1909 was a victory for the Kahn bar, a equally important setback occurred in the same year. Contractors for the Collingwood Council (in inner Melbourne) had constructed a bridging structure over the Reilly Street (now Alexandra Parade) drain, reinforced with Kahn

